

REMARKS

In response to the Office Action dated February 19, 2002, claims 1, 11, 14, 16 and 20 have been amended. Claims 1-20 remain in the case. Reexamination and reconsideration of the application, as amended, are requested.

The Office Action rejected claims 1-10, 16-17 and 20 under 35 U.S.C. § 112, second paragraph.

The Applicant has amended applicable claims to correct antecedent basis problems to overcome this rejection.

The Office Action rejected claims 11-13 under 35 U.S.C. § 102(b) as being anticipated by Ishinaga et al. (U.S. Patent No. 5,175,565).

The Applicant respectfully traverses this rejection in light of the amendments to the claims and the arguments below.

The Applicant's invention in independent claim 11 is a method for printing images with an inkjet printhead and includes controlling temperature variations of the printhead to be within a predefined range from a starting point of a print swath to an end point of the print swath and successive print swaths of pigmented ink and minimizing air bubble growth rates and bubble sizes within the printhead to enable expulsion of the air bubbles from the printhead without clogging.

In contrast, Ishinaga et al. merely disclose a system that attempts to uniformly and linearly maintain the temperature across the printhead. However, unlike the Applicant's invention, Ishinaga et al. clearly do **not** disclose controlling temperature variations of the printhead to be within a predefined range from a starting point of a print swath to an end point of the print swath and successive print swaths of pigmented ink. In addition, Ishinaga et al. do **not** disclose the Applicant's minimizing air bubble growth rates and bubble size within the printhead to enable expulsion of the air bubbles from the printhead without clogging.

According to the *MPEP*, "[A] claim is anticipated **only if** each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." [*emphasis added*] *MPEP* 2131, citing Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Unquestionably, Ishinaga et al., do **not** disclose all of the Applicant's claimed

elements, as argued above, and thus, the rejection of the claims under 35 U.S.C. § 102(b) is overcome.

Next, the Office Action rejected claims 1-9 and 14-20 under 35 U.S.C. § 103(a) as being unpatentable over Ishinaga et al. in view of Kawanabe et al. (U.S. Patent No. 6,219,153) and Winzer et al. (U.S. Patent No. 5,629,578). The Office Action also rejected claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Ishinaga et al. in view of Kawanabe et al. and Winzer and further in view of Kato et al.

The Applicant respectfully traverses this rejection in light of the amendments to the claims and the arguments below because the cited references, in combination or alone, are missing at least one material limitation of the Applicants' claimed invention. According to case law and the MPEP, all of the claimed elements of an Applicant's invention must be considered. If one of the elements of the Applicant's invention is missing from or not taught in the cited references and the Applicant's invention has advantages not appreciated by the cited references, then no prima facie case of obviousness exists. The Federal Circuit Court has stated that it was error not to distinguish claims over a combination of prior art references where a material limitation in the claimed system and its purpose was not taught therein. In Re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Specifically, the cited references, in combination, do **not** teach, suggest or disclose all of the Applicant's material limitations. Namely, Kawanabe et al. add nothing to Ishinaga et al. that would render the Applicant's claimed invention obvious. This is because Kawanabe et al. simply disclose a system that chooses between a pigmented ink or a dye ink based on input data. Next, the remaining references add nothing to the cited combination that would render the Applicant's claimed invention obvious.

Clearly, Kawanabe et al., Winzer et al. and Kato et al., in combination with Ishinaga et al. or each taken alone, do **not** teach, suggest or disclose the Applicant's claimed controller that controls temperature variations of the printhead to be within a predefined range from a starting point of a print swath to an end point of the print swath and successive print swaths of pigmented ink to minimize air bubble growth rates and bubble size within the printhead to enable expulsion of the air bubbles from the

printhead without clogging.

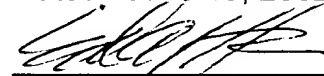
Therefore, a prima facie case of obviousness **cannot** be established because the combination of cited references is missing a material limitation of the claimed invention, and thus, the rejections must be withdrawn. ACS Hospital Systems, Inc. v. Montefiore Hospital (MPEP 2143.01).

With regard to the dependent claims, they depend from the respective independent claims argued above and are therefore also patentable (MPEP § 2143.03).

In view of the arguments and amendments set forth above, the Applicant respectfully submits that the rejected claims are in immediate condition for allowance. The Examiner is therefore respectfully requested to withdraw the outstanding claim rejections and to pass this application to issue. Additionally, in an effort to expedite and further the prosecution of the subject application, the Applicant kindly invites the Examiner to telephone the Applicant's attorney at (818) 885-1575 if the Examiner has any questions or concerns. Please note that all correspondence should continue to be directed to:

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Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

The following are marked-up versions of claims 1, 11, 14, 16 and 20:

1. (Once Amended) A printing system receiving input data for printing images on a print media, comprising:

an inkjet printhead having a body and ink ejection devices located on a substrate; [and]

[a nozzle member attached to the body and including] a temperature sensor that senses the temperature of the inkjet printhead; and

a controller that uses [the input data to optimize the temperature operating range for printing of pigmented ink] the sensed temperature to control temperature variations of the printhead to be within a predefined range from a starting point of a print swath to an end point of the print swath and successive print swaths of pigmented ink to minimize air bubble growth rates and bubble size within the printhead to enable expulsion of the air bubbles from the printhead without clogging.

11. (Once Amended) A method for printing images with an inkjet printhead on a print media from a printing system having heating elements located on a substrate, the method comprising:

receiving a temperature of the substrate before printing begins;

comparing the temperature with a set point for printing;

initiating the heating elements if the temperature is below a predetermined printing threshold; [and]

turning off the heating elements when the threshold temperature of the substrate has been reached; and

controlling temperature variations of the printhead to be within a predefined range from a starting point of a print swath to an end point of the print swath and successive print swaths of pigmented ink; and

minimizing air bubble growth rates and bubble sizes within the printhead to enable expulsion of the air bubbles from the printhead without clogging.

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14. (Once Amended) A large array inkjet printing apparatus that prints pigmented ink, comprising:
a monolithic substrate defining a printhead;
a large array of ink ejection elements formed on the substrate; and
a nozzle member coupled to the substrate and including a controller that [optimizes a temperature operating range for printing the pigmented ink] controls temperature variations of the printhead to be within a predefined range from a starting point of a print swath to an end point of the print swath and successive print swaths of pigmented ink to minimize air bubble growth rates and bubble size within the printhead to enable expulsion of the air bubbles from the printhead without clogging.

16. (Once Amended) The large array inkjet printing apparatus [of claim]of claim 13, wherein the controller controls an increase in the mean temperature of the substrate through a feedback loop.

20. (Once Amended) The large array inkjet printing apparatus [of claim]of claim 13, wherein the controller controls temperatures of specific sections of the substrate and a baseline temperature of ink ejection nozzles of the nozzle member associated with the respective sections.